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Cordless receivers with 0/4…20 mA output

DEC302/DEC303/DEC304/DEC305

User's manual

MW6366

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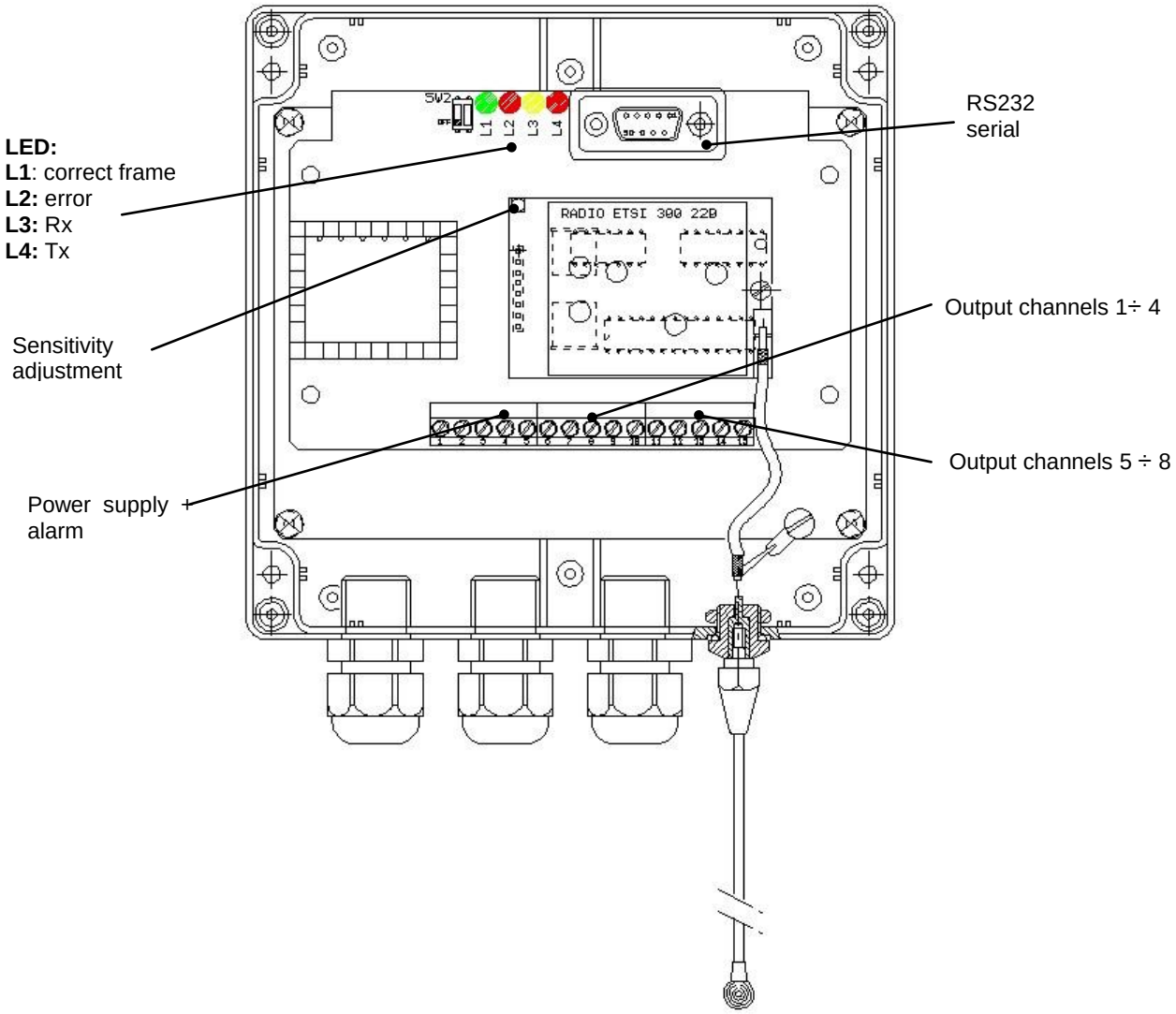
1.Models and features



	DEC302	DEC303	DEC304	DEC305
Power supply	8 ÷ 28Vdc	24 Vac	8 ÷ 28Vdc	24 Vac
N° of powered outputs	4		8	
Environmental limits	-20 ÷ 60 °C			
Dimensions/Weight	150 mm x 150 mm x 57 mm / 3 kg			
Protection	IP65			
Transmission power	10 mW			
Range	300 m with omni-directional antenna			
Transmission frequency	434.650 MHz			
Transmission rate	9600 bps			
Programming	Software LSI via RS232 or cordless sender DEC301			
Timeout due to failed datum transfer	15 min (default) – configured by the user by means of the software			
Output resolution	0.01 mA			
Output type	0 ÷ 20 mA / 4 ÷ 20 mA dip-switch configurable			
Alarm output	TTL / open collector			
Signaling	Internal LED			

2.Installation guide

Attention: The *LSM – LSI Sensor Manager* software, installed on a PC, must be used to program the receiver. Neither install or set the instrument in the absence of a PC for its configuration.

2.1 Sequence of operations

1- Unscrew the four screws located in the corners and remove the cover of the DEC302…305.
2- Power the instrument as indicated in §2.2 "Connections".
3- Once the instrument has been powered, make sure the green LED is permanently on, thus indicating that the receiver is in active state.
4- Configure the receiver through software *LSM – LSI Sensor Manager* from the PC, in case this has not been previously done, as indicated in §2.3 "Sensor Configuration".
5- Switch off the receiver; then switch on again the DEC302...305.
6- Activate either the transmitters (DME820) or sensors of the cordless line from which the quantities are to be received.
7- The following combination of the signalization LED's confirms that he instrument is receiving the data in a correct manner: the green led (L1), which is on, is turned off when a data packet is received by one of the programmed channels; the yellow led, in turn, blinks. For further information about the signalization LED's see §2.4 "Signalization LED's".

2.2 Connections

Here in after is represented the label placed inside the cover of the instrument that shows the possible connections and some indications of operation.

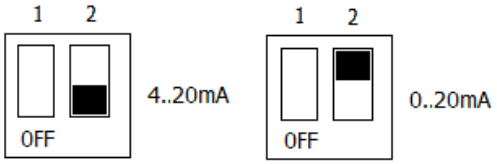
DEC3XX

MORSETTIERA
TERMINAL BLOCKS

1:+12V=(24V~) ALIM/POWER SUPPLY
2: -12V=(24V~) ALIM/POWER SUPPLY
3: ⏚
4:+USCITA/OUTPUT OPEN COLLECTOR
5:-USCITA/OUTPUT OPEN COLLECTOR

6: USCITA/OUTPUT	1	+0(4)20 mA
7: USCITA/OUTPUT	2	+0(4)20 mA
8: USCITA/OUTPUT	3	+0(4)20 mA
9: USCITA/OUTPUT	4	+0(4)20 mA
10:COMUNE/COMMON	1÷4	-0(4)20 mA
11:USCITA/OUTPUT	5	+0(4)20 mA
12:USCITA/OUTPUT	6	+0(4)20 mA
13:USCITA/OUTPUT	7	+0(4)20 mA
14:USCITA/OUTPUT	8	+0(4)20 mA
15:COMUNE/COMMON	5÷8	-0(4)20 mA

SW2: SELEZIONE USCITA ELETTRICA
ELECTRIC OUTPUT SELECTION



LED DI SEGNALAZIONE
SIGNALLING LED

L1: LUCE VERDE/GREEN LIGHT

ACCESA FISSA FIXED ON	RICEVITORE ATTIVO ACTIVE RECEIVER
LAMPEGGIANTE FLASHING	DATO RICEVUTO DATA RECEIVED

L2: LUCE ROSSA/RED LIGHT

SPENTA LIGHT OFF	NESSUN ERRORE NO ERROR
ACCESA FISSA FIXED ON	ERRORE EEPROM EEPROM ERROR
1 LAMPEGGIO 1 FLASH	MANCATA RICEZIONE RECEPTION FAILURE
2 LAMPEGGI 2 FLASHES	DATO RIC.FUORI SCALA DATA OUT OF RANGE
3 LAMPEGGI 3 FLASHES	BATTERIA SCARICA SUL TRASMETTITORE TRANSMITTER LOW BATTERY

L3: LUCE GIALLA/YELLOW LIGHT

LAMPEGGIANTE FLASHING	RICEZIONE DATI DATA RECEIVING

L4: LUCE ROSSA/RED LIGHT

LAMPEGGIANTE FLASHING	TRASMISSIONE DATI DATA TRANSMISSION

Carry out the connections to the terminals as follows:

Power supply:

- **DEC302/DEC304**
  1. 8 ÷ 28 Vdc
  2. 0 Vdc

- **DEC303/DEC305**
  1. 24Vac
  2. 24Vac

Alarms and outputs:

- **DEC302…DEC305**
  3. Ground
  4. Alarm output +5Vdc TTL/OPEN COLLECTOR
  5. Alarm output 0 Vdc
  6. Output + mA channel 1
  7. Output + mA channel 2
  8. Output + mA channel 3
  9. Output + mA channel 4
  10. Common outputs (1÷4) 0 Vdc

- **DEC304/DEC305**
  11. Output + mA channel 5
  12. Output + mA channel 6
  13. Output + mA channel 7
  14. Output + mA channel 8
  15. Common outputs (5÷8) 0 Vdc

POWERING THIS INSTRUMENT WITH HIGHER VOLTAGE THAN SPECIFIED WILL DAMAGE THE DEVICE IRREPARABLY.

2.3 Configuring the receiver

The configuration of the receiver is to be carried out with the aid of *LSM - LSI SENSOR MANAGER* software, supplied with the receiver DEC302…305 and on LSI LASTEM products DVD (SWUM_00110 LSM User's Manual).

The outputs must be configured with the label of the DME820 transmitters (or sensors of the Cordless line) and the outputs associated to the transmitted quantities.

By default, the analog outputs of the receiver are calibrated to 4÷20mA, but the channels are not configured; therefore, when the DEC302…305 receiver is first started no signal will be received even if auto-transmission cordless sensors are located nearby.
The receiver can be configured in two different manners:

1. By means of the RS232 serial connector, to be connected to both the card and the PC.
2. By means of the DEC201 cordless sender/DEC301 receiver.

Configuring the receiver via serial connector

Connect the serial port RS232 of the receiver to that of the pc using the serial cable supplied with the program.

Configuring the receiver by means of the DEC201 cordless sender / DEC301 receiver.

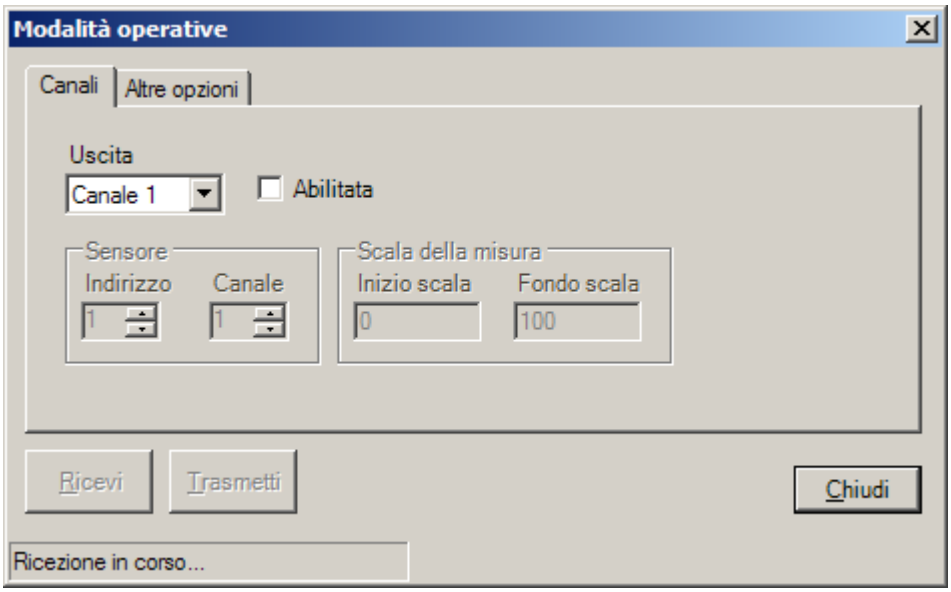
In case the configuration takes place with the help of the cordless receiver/sender instead of the serial port, we suggest switching off possible sensors installed nearby as they may influence the data transmission during the configuration process.
If you are equipped with a DEC301 receiver, it must be configured as sender.
For further information about the use of the DEC201 cordless sender/DEC301 receiver, please see "INSTUM_00067 user's manual of the cordless system" supplied on the LSI LASTEM products DVD.

Configuration sequence

1- Start the program *LSM – LSI Sensor Manager*.
2- Click on the *Sensor Selection* button on the interface of the LSM program and select the instrument to be configured (instrument mod. DEC302/3/4/5).
3- Click on the *Operative modes* button.

The *Operative Modes* window is divided into two sections: *Channels* and *Other options*.

Channels section:



a) In the field *Output*, select the receiver's analog output channel number to be configured; select the flag *Enabled* right beside it.
b) In the field *Address*, select the ID of the transmitter (ID = last three digits of the bar code located on the cordless transmitter).
c) In the field *Channel*, select the cordless transmitter's channel related to the quantity you wish to assign to the output.
d) In the fields *Measurement scale* enter the start and end scale values of the quantity received by the selected channel (e.g.: –30 +70° for a temperature)
e) Repeat steps a) to d) to configure a new output channel. It is not necessary to configure all output channels. Some channels of the receiver may be left *not enabled* if not in use.
f) Click on the *Transmit* button to send the configuration of the channels to the receiver; once the operation has been concluded the status bar will display the results of the transmission procedure.

Example:
If you are equipped with a DME801 sensor (ID= 037) and a DME820 transmitter (ID= 064).
Configure the receiver with the following outputs:
- analog output 1 = humidity signal from DME801
- analog output 2 = level signal from DME820

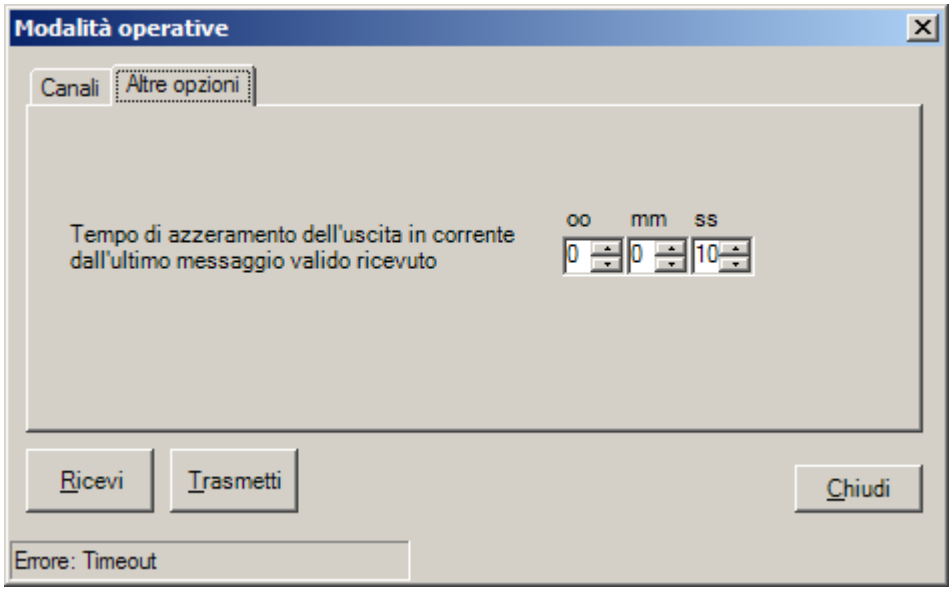
- Channel 1 enabled
- Sensor address 37 Channel 2 (relative humidity)
- Start scale 0

- End scale 100

- Channel 2 enabled
- Sensor address 64 Channel 1 (level)
- Start scale 0
- End scale 5

Additional options section:

The section *Additional options* is used to determine the maximum time for the electrical signal to remain in output after receiving the valid received message; by doing so, one can determine, when the output signal is reset, possible communication failures; it is advisable to set this value to at least three times the maximum acquisition rate between the transmitters the receiver receives the signals from.



After modifying one or more parameters in one or more sections click on *"Transmit"* to send the information to the instrument's memory; upon termination of the operation the window's status bar will display the results of the transmission procedure.

2.4 LED signals

How to interpret the LED lights inside the receiver:

L1 - GREEN LED (correct frame):

- **PERMANENTLY ON** indicates the receiver is in active state; this means the microprocessor is working and waiting for the eventual frame transmitted by a satellite transmitter.
- **MOMENTARY SHUTOFF** indicates that a correct frame, corresponding to one of the many expected sensors, has been received. During the configuration procedure the shutoff function is disabled.

L2 - RED LED (error):

- **OFF** indicates no error.
- **PERMANENTLY ON** error in EEPROM; contact the LSI technical support.
- **BLINKING ONCE** indicates failed datum transfer of at least one of any configured channel, based on the timeout set during the configuration procedure. As soon as the channel, which triggered the error, receives a valid datum, the LED is shut off.
- **BLINKING TWICE** indicates that the datum of at least one of any configured channel is out of the set scale range.
- **BLINKING THREE TIMES** indicates that at least one of the sensors received has transmitted a discharged battery message.

L3 - YELLOW LED (Rx):

- **BLINKS** to indicate the radio has received a packet.

L4 - RED LED (Tx):

- **BLINKS** to indicate the radio has transmitted a packet.

2.5 Alarm output

The instrument is equipped with an alarm output can be used for signalling to other electrical devices the failure status of the unit.

The activation of alarm output occurs in correspondence of any errors found (as definied in §2.4): if the error LED is switch off, the output is also kept off.